STRATUM
ENGINEERING, LLC
Geotechnical Engineering • Testing and Inspection Services

January 20, 2011

Broadmoor, LLC
2740 N. Arnoult Street
Metairie, Louisiana 70002

Attn: Mr. Chris Watermeier

Re: Geotechnical Engineering Report
Proposed Sheet pile Bulkhead
Saenger Theater Redevelopment
New Orleans, Louisiana
Project No. G11-003

Dear Chris:

Stratum Engineering, LLC (SE) is pleased to submit our Geotechnical Engineering recommendations for the proposed sheet pile wall to be installed at the above referenced project site. This report includes the results of our evaluation of a cantilever and anchored sheet piles considered for the addition of the theater backstage.

We appreciate the opportunity to provide our Engineering Services and look forward to working with you during the construction phase of this project. If you have any questions pertaining to this report, or if we may be of further service, please do not hesitate to call.

Respectfully submitted,
STRATUM ENGINEERING, LLC

Srilakshmi D. Nagarajan
Project Manager

Tony Y. Maroun, PE
Principal

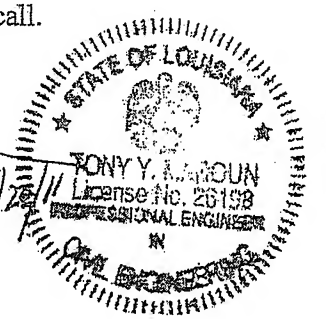

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TABLE OF CONTENTS

Project Authorization

Stratum Engineering, LLC (SE) was retained by Broadmoor, LLC to assist in the design of a bulkhead system to brace an excavation that will be required during construction of the Saenger Theater stage addition. Our services were provided in general accordance with SE Proposal No. G10-126 dated December 27, 2010 through a professional services agreement No. 10014-005 dated December 28, 2010

Scope of Services

Our scope of services includes analyses of a cantilever and an anchored sheet piles for a braced excavation using soil parameters obtained from a Geotechnical Report No. 0109-0002 prepared by Lourie Consultants and dated January 7, 2010 as well as project plans provided by Broadmoor, LLC. Our scope also includes estimating the capacity for a 10 inch diameter open end pipe pile which will be used for the support of a transformer vault inside of the facility.

Project Information

The Saenger Theater, which was built in the 1920's, is located at 143 N. Rampart Street in New Orleans, Louisiana. The facility is bordered by Canal Street to the south, Iberville Street to the north, Basin Street to the west and N. Rampart Street to the east. Since the theater was impacted by hurricane Katrina in 2005, it will be restored and the building footprint enlarged on the north side about 18,000 square feet. This will include removal of the existing stage, extending the stage and the basement below the stage to include a portion of Iberville Street for a distance of about 18 feet. We understand that the existing stage basement is about 100 feet long (along Iberville Street), about 40 feet wide and 13 feet deep. Based on the project plans, the existing basement will be deepened to 15 feet and extended under the stage addition. The basement will have a concrete slab-on-grade underlain by 24 inches of #57 gravel serving as a French drain for the groundwater control system.

In order to construct the new stage and basement area, a bulkhead system will be required along Iberville Street to provide temporary support for the adjacent street and the existing three (3) story structure, which we understand is supported on timber piles. The geotechnical recommendations presented in this report are based on the project information provided by Broadmoor LLC, and the subsurface materials described in Lourie Consultants Geotechnical Report. If any of the noted information is incorrect, it should be brought to our attention so that the recommendations may be amended, if necessary.

Construction Sequence

It is our understanding that in order to provide a safe excavation for the proposed stage expansion, a construction sequence will be adopted by Broadmoor to facilitate construction and minimize the impact of construction on near by structures. The proposed general construction sequence is as follows:

1. Drive the proposed sheet pile wall to the required depth and provide temporary bracing until the floor slab is placed at the bottom of the excavation.
2. Remove the existing basement concrete slab and exterior walls.
3. Backfill the excavation with sand within a few feet from the surface.
4. Drive the foundation timber piles and follow them to an approximate depth of 15 feet below grade.
5. Excavate the sand, form and place the foundation caps and walls.
6. Maintain the dewatering system and expand it under the proposed stage addition to keep the groundwater level at the designed level.
7. Place the basement floor slab.

Sheet pile Evaluation

The analysis presented in this report is based on the soil borings included in the geotechnical report prepared for the project by Lourie Consultants. The borings' depth is relative to Iberville Street surface elevation. The subsurface soil strength properties for short and long term conditions used in the analysis are summarized below:

Soil Type	Depth Range (ft)	Total Unit Weight (pcf)	Short Term Condition (Q-Case)		Long Term Condition (S-Case)	
			Cohesion (psf)	Angle of Friction (degrees)	Cohesion (psf)	Angle of Friction (degrees)
Sand & Clay Fill	0 to 3.5	115	250	0	0	23
Soft to Firm Fat Clay	3.5 to 12	106	490	0	0	23
Very Soft Fat Clay	12 to 19	103	170	0	0	23
Soft Fat Clay	19 to 39	107	380	0	0	23
Medium Dense Sand	39 to 48	120	0	31	0	31
Firm Sandy Clay	48 to 57	120	630	0	0	25
Dense Sand	57 to 62	125	0	34	0	34
Firm Sandy Clay	62 to 72	120	805	0	0	25
Very Dense Sand	72 to 75	125	0	35	0	35

Cantilever Sheet Pile

Due to site constraints caused by underground utility duct bank, located 3 to 4 feet below the surface along the center of Iberville Street, a sheet pile wall system will be designed to retain the remaining portion of Iberville Street and adjacent structure and limit lateral movement to levels acceptable by the project structural engineer. Consequently, a cantilever sheet pile was initially considered for the temporary excavation which will be open during construction for a period of about 6 months.

Relative elevations were used in the feet of the wall, where the top of the wall at Iberville Street was assumed at elevation 0.00 feet and the bottom of the excavation assumed at elevation -15 feet. Furthermore, the groundwater elevation was assumed to be at -6 feet at the retained side of the wall and at -15 feet at the excavation side.

The computer program CWALSHT by the U.S. Army Corps of Engineers was used to conduct the analysis for the cantilever sheet pile wall. A factor of safety of 1.0 was applied to the active and passive pressures for both short term and long term cases in the program. The resulting penetration depth was then increased by 30 percent to provide the minimum factor of safety of 1.3. A surcharge load of 250 psf was considered for a distance of 27 feet to include the remaining 17 feet of Iberville Street and 10 feet of side walk up to the adjacent pile supported building.

The results of the analysis for short and long term conditions are tabulated below. The output files from the program are included in the Appendix of the report.

Cantilever Steel Sheet Pile Wall Saenger Theater Stage Addition				
Loading Condition	**Top of Wall Elevation at Iberville Street (ft)**	**Sheet pile Tip Elevation (ft)**	**Maximum Moment (kips-ft)**	**Sheet Pile Length (ft)**
Short Term	0.00	-77	257	77
Long Term	0.00	-78	377	78

Considering a steel yield stress of 55 ksi and the maximum bending moment, the minimum section modulus was estimated to be about 81 in^3 which could not be provided with conventional PZ or PZC sheet pile sections. Consequently, a cantilever sheet pile could not be provided to brace the excavation.

Anchored Sheet Pile

Considering the limitations the utility duct bank presents to providing an anchor system near the top of the wall, the proposed sheet pile will be braced by a concrete floor slab placed at the bottom of the excavation at elevation -15 feet. Similarly, using the soil parameters and the excavation geometry as well as an anchor depth of 15 feet, the short term loading condition governs and should be used for the design of the bulkhead. The results of the analyses are as follows:

Anchored Steel Sheet Pile Wall Saenger Theater Stage Addition					
Loading Condition	**Top of Wall Elevation at Iberville Street (ft)**	**Sheet Pile Tip Elevation (ft)**	**Maximum Moment (kips-ft)**	**Anchor Force at -15 ft (kips)**	**Sheet Pile Length (ft)**
Short Term	0.00	-50	10.6	9.4	50
Long Term	0.00	-42	32.2	11	42

Considering the short term maximum bending moment and a steel yield stress of 55 ksi, a PZ 40 section is recommended to limit deflection at the top of wall to less than ½ inch. The recommended section is based on steel bending stresses assumed by the geotechnical engineer for preliminary design information. The section should be analyzed by the structural engineer who should confirm the minimum required section modulus based on the steel allowable tensile stress used in his final design.

Since the floor slab at the bottom of the excavation will not be placed for several weeks, a temporary brace near the street level will be required to stabilize the wall and provide temporary support. Furthermore, due to the close proximity of the excavation to the existing utility duct bank and adjacent structure, the street level tie-backs are recommended for the duration of the excavation along with inclinometers installed along the wall to monitor potential lateral movement during construction of the basement.

Transformer Vault Foundation

We understand that the existing Popeye's Restaurant will be acquired to accommodate the expansion of the Saenger Theater. A concrete vault will be provided for the electrical transformer that will be located inside the building. Due to clearance restrictions, the vault will be supported on segmented 10-inch diameter open end steel pipe pile designed for an allowable capacity of 8 tons. The subsurface soil properties obtained from the provided geotechnical report were used to evaluate the capacity of the proposed pile which will be derived through skin friction along the pile embedded length. The recommended pile length is in reference to the

street level surface elevation. The recommended allowable compression and tension capacities are tabulated below:

Estimated Allowable Single Pile Load Capacity, Tons* F.S. = 2.0 (compression) F.S. = 3.0 (tension)		
Pile Length, (ft)	10" Diameter Open End Steel Pipe Pile	
	Compression	Tension
30	7	5
35	8	6
40	10	7
45	13	10

***the capacities are soil-pile related capacities and considerations should be given to the structural integrity of the pile member.**

The estimated pile capacities include a factor of safety of 2.0 in compression and 3.0 in tension which should be verified by a field load test. Otherwise, higher factor of safety on the order of 3.0 and 3.5 are recommended in compression and tension, respectively. Accordingly, a minimum pile penetration depth of 42 feet will be necessary to achieve an allowable compression capacity of 8 tons using a factor of safety of 3.0.

(42) PILES

Report Limitations

The recommendations submitted in this report are based on the provided subsurface soils information provided to us as well as our understanding of the project details. If there are any revisions to the project plans, or if deviations from the subsurface conditions noted in this report are encountered during construction. SE should be notified immediately to determine if changes in the recommendations are required.

The geotechnical engineer warrants that the analyses, recommendations or professional advice contained herein have been made in accordance with generally accepted Professional Engineer practices in the local area. No other warranties are implied or expressed. This report has been prepared for the exclusive use of Broadmoor, LLC for the specific application to the proposed bulkhead to be installed during construction of the stage addition to the Saenger Theater located on N. Rampart Street in New Orleans, Louisiana.

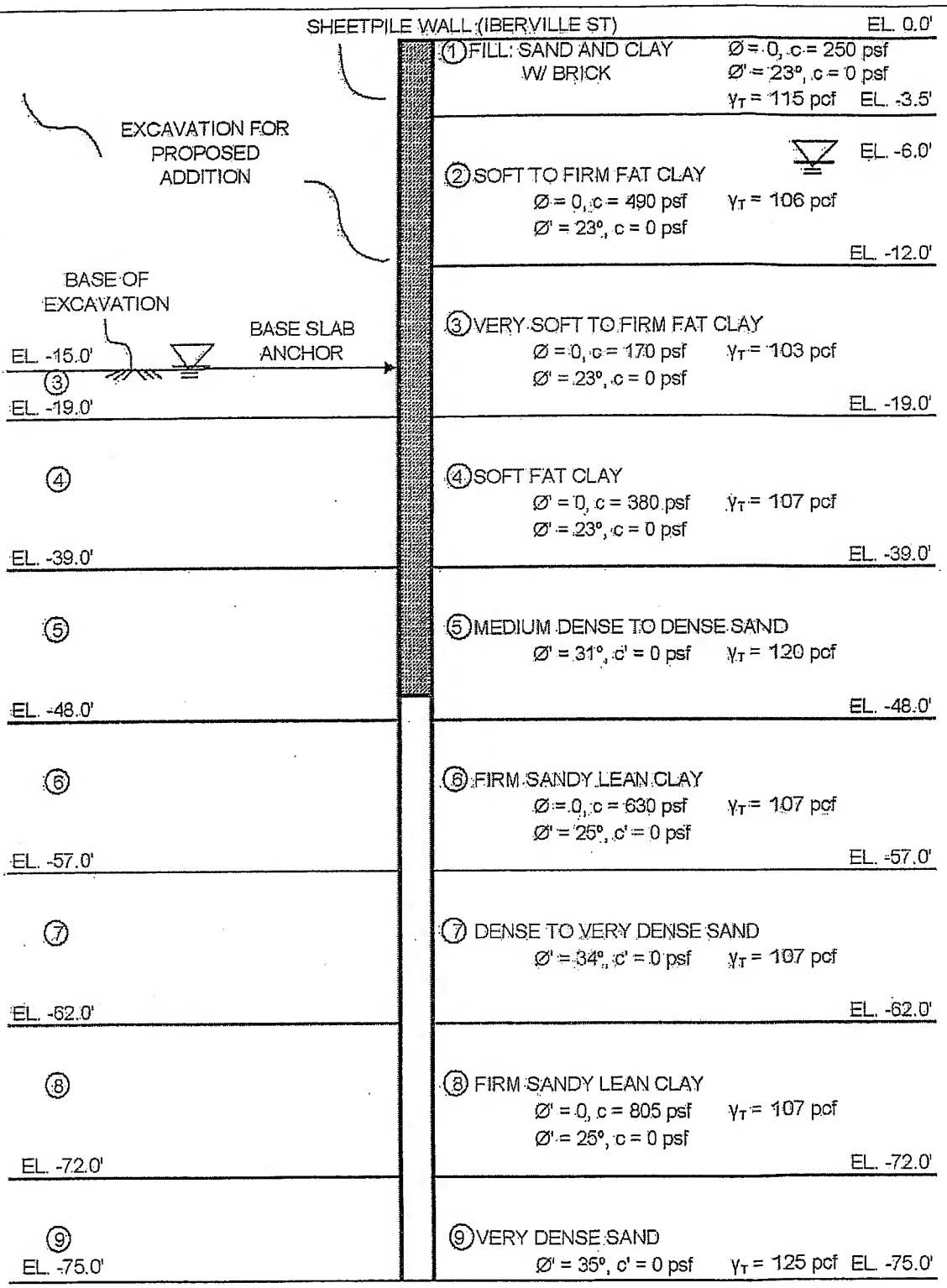
APPENDIX

WALL CROSS SECTION

CWALSHT INPUT/OUPUT FILES

APPENDIX

STRATUM
ENGINEERING, LLC



NOTES: BASED ON BORINGS B-01, B-02, AND B-03 BY LOURIE CONSULTANTS (NOV. 2009)
(NOT TO SCALE)

STRATUM ENGINEERING, LLC

WALL CROSS SECTION
SE PROJECT NO. G11-003

GEOTECHNICAL ENGINEERING SERVICES
PROPOSED SHEETPILE BULKHEAD
SAENGER THEATER
NEW ORLEANS, LOUISIANA

Cantilever-Qcase

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS
BY CLASSICAL METHODS

DATE: 15-JANUARY-2011 TIME: 7:02:27

****
* INPUT DATA *
****

I.--HEADING
'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'CANTILEVERED WALL
'SHORT-TERM CONDITION (Q-CASE)

II.--CONTROL
CANTILEVER WALL DESIGN
FACTOR OF SAFETY FOR ACTIVE PRESSURES = 1.00
FACTOR OF SAFETY FOR PASSIVE PRESSURES = 1.00

III.--WALL DATA
ELEVATION AT TOP OF WALL = 0.00 FT.

IV.--SURFACE POINT DATA

IV.A.--RIGHTSIDE

DIST. FROM WALL (FT)	ELEVATION (FT)
27.00	0.00

IV.B.--LEFTSIDE

DIST. FROM WALL (FT)	ELEVATION (FT)
50.00	-15.00

V.--SOIL LAYER DATA

V.A.--RIGHTSIDE
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURE = DEFAULT
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURE = DEFAULT

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH-ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH-ESION (PSF)	<--BOTTOM--> ELEV. (FT)	SLOPE (FT/FT)	<-SAFETY-> <-FACTOR-> ACT.	PASS.
115.00	115.00	0.00	250.00	0.00	0.00	-3.50	0.00	DEF	DEF
106.00	106.00	0.00	490.00	0.00	0.00	-12.00	0.00	DEF	DEF
103.00	103.00	0.00	170.00	0.00	0.00	-19.00	0.00	DEF	DEF
107.00	107.00	0.00	380.00	0.00	0.00	-39.00	0.00	DEF	DEF
120.00	120.00	31.00	0.00	0.00	0.00	-48.00	0.00	DEF	DEF
120.00	120.00	0.00	630.00	0.00	0.00	-57.00	0.00	DEF	DEF
125.00	125.00	34.00	0.00	0.00	0.00	-62.00	0.00	DEF	DEF
120.00	120.00	0.00	805.00	0.00	0.00	-72.00	0.00	DEF	DEF
125.00	125.00	35.00	0.00	0.00	0.00			DEF	DEF

V.B.--LEFTSIDE
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURE = DEFAULT
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURE = DEFAULT

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH-ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH-ESION (PSF)	<--BOTTOM--> ELEV. (FT)	SLOPE (FT/FT)	<-SAFETY-> <-FACTOR-> ACT.	PASS.
103.00	103.00	0.00	170.00	0.00	0.00	-19.00	0.00	DEF	DEF

				Cantilever-Qcase					
107.00	107.00	0.00	380.00	0.00	0.00	-39.00	0.00	DEF	DEF
120.00	120.00	31.00	0.00	0.00	0.00	-48.00	0.00	DEF	DEF
120.00	120.00	0.00	630.00	0.00	0.00	-57.00	0.00	DEF	DEF
125.00	125.00	34.00	0.00	0.00	0.00	-62.00	0.00	DEF	DEF
120.00	120.00	0.00	805.00	0.00	0.00	-72.00	0.00	DEF	DEF
125.00	125.00	35.00	0.00	0.00	0.00			DEF	DEF

VI.--WATER DATA
UNIT WEIGHT = 62.40 (PCF)
RIGHTSIDE ELEVATION = -6.00 (FT)
LEFTSIDE ELEVATION = -15.00 (FT)
NO SEEPAGE

VII.--VERTICAL SURCHARGE LOADS

VII.A.--VERTICAL LINE LOADS
NONE

VII.B.--VERTICAL UNIFORM LOADS
NONE

VII.C.--VERTICAL STRIP LOADS

VII.C.1.--RIGHTSIDE
<-DIST. FROM WALL->

START (FT)	END (FT)	STRIP LOAD (PSF)
0.00	27.00	250.00

VII.C.2.--LEFTSIDE
NONE

VII.D.--VERTICAL RAMP LOADS
NONE

VII.E.--VERTICAL TRIANGULAR LOADS
NONE

VII.F.--VERTICAL VARIABLE LOADS
NONE

VIII.--HORIZONTAL LOADS
NONE

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS
BY CLASSICAL METHODS
DATE: 15-JANUARY-2011 TIME: 7:02:30

****
* SOIL PRESSURES FOR *
* CANTILEVER WALL DESIGN *
****

I.--HEADING

'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'CANTILEVERED WALL
'SHORT-TERM CONDITION (Q-CASE)

II.--SOIL PRESSURES

RIGHTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

LEFTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

				<------NET------>			
	NET	<---LEFTSIDE--->		(SOIL + WATER)		<--RIGHTSIDE--->	
ELEV.	WATER	PASSIVE	ACTIVE	ACTIVE	PASSIVE	ACTIVE	PASSIVE
(FT)	(PSF)	(PSF)	(PSF)	(PSF)	(PSF)	(PSF)	(PSF)
0.0	0.0	0.0	0.0	0.0	500.0	0.0	500.0
-1.0	0.0	0.0	0.0	0.0	734.1	0.0	734.1
-2.0	0.0	0.0	0.0	0.0	843.3	0.0	843.3
-3.0	0.0	0.0	0.0	0.0	952.5	0.0	952.5
-3.4	0.0	0.0	0.0	0.0	1000.0	0.0	1000.0
-3.5+	0.0	0.0	0.0	7.1	1007.1	7.1	1007.1
-3.5-	0.0	0.0	0.0	0.0	1487.1	0.0	1487.1
-4.0	0.0	0.0	0.0	0.0	1537.3	0.0	1537.3
-5.0	0.0	0.0	0.0	0.0	1637.7	0.0	1637.7
-6.0	0.0	0.0	0.0	0.0	1738.2	0.0	1738.2
-7.0	62.4	0.0	0.0	62.4	1839.0	0.0	1776.6
-8.0	124.8	0.0	0.0	124.8	1939.9	0.0	1815.1
-9.0	187.2	0.0	0.0	187.2	2041.0	0.0	1853.8
-10.0	249.6	0.0	0.0	249.6	2142.4	0.0	1892.8
-11.0	312.0	0.0	0.0	312.0	2243.9	0.0	1931.9
-11.7	356.5	0.0	0.0	356.5	2316.5	0.0	1960.0
-12.0+	374.4	0.0	0.0	385.7	2345.7	11.3	1971.3
-12.0-	374.4	0.0	0.0	1025.7	1705.7	651.3	1331.3
-13.0	436.8	0.0	0.0	1124.7	1804.7	687.9	1367.9
-14.0	499.2	0.0	0.0	1223.9	1903.9	724.7	1404.7
-15.0+	561.6	0.0	0.0	1323.4	2003.4	761.8	1441.8
-15.0-	561.6	340.0	0.0	983.4	2003.4	761.8	1441.8
-16.0	561.6	380.6	0.0	980.0	2040.6	799.0	1479.0
-17.0	561.6	421.2	0.0	976.9	2078.1	836.5	1516.5
-18.0	561.6	461.8	0.0	974.0	2115.8	874.2	1554.2
-19.0+	561.6	502.4	0.0	551.2	2363.6	912.0	1592.0
-19.0-	561.6	922.4	0.0	551.2	2363.6	492.0	2012.0
-20.0	561.6	967.0	0.0	128.7	2615.7	534.1	2054.1
-21.0	561.6	1011.6	0.0	126.3	2657.9	576.3	2096.3
-22.0	561.6	1056.2	0.0	124.1	2700.3	618.7	2138.7
-23.0	561.6	1100.8	0.0	122.1	2742.9	661.3	2181.3
-24.0	561.6	1145.4	0.0	120.2	2785.6	704.0	2224.0
-25.0	561.6	1190.0	0.0	118.4	2828.4	746.8	2266.8
-26.0	561.6	1234.6	0.0	116.7	2871.3	789.7	2309.7
-27.0	561.6	1279.2	0.0	115.2	2914.4	832.8	2352.8
-28.0	561.6	1323.8	0.0	113.8	2957.6	876.0	2396.0
-29.0	561.6	1368.4	0.0	112.5	3000.9	919.3	2439.3
-30.0	561.6	1413.0	0.0	111.2	3044.2	962.6	2482.6
-31.0	561.6	1457.6	0.0	110.1	3087.7	1006.1	2526.1
-32.0	561.6	1502.2	0.0	109.1	3131.3	1049.7	2569.7
-32.4	561.6	1520.0	0.0	108.7	3148.7	1067.1	2587.1
-33.0	561.6	1546.8	26.8	108.1	3148.1	1093.3	2613.3
-34.0	561.6	1591.4	71.4	107.2	3147.2	1137.0	2657.0
-35.0	561.6	1636.0	116.0	106.3	3146.3	1180.7	2700.7
-36.0	561.6	1680.6	160.6	105.5	3145.5	1224.5	2744.5
-37.0	561.6	1725.2	205.2	104.8	3144.8	1268.4	2788.4

Cantilever-Qcase

-38.0	561.6	1769.8	249.8	104.1	3144.1	1312.3	2832.3
-38.1	561.6	1774.1	254.1	0.0	3321.4	1316.5	2836.5
-39.0+	561.6	1814.4	294.4	-972.0	4977.8	1356.2	2876.2
-39.0-	561.6	3294.0	337.5	-972.0	4977.8	684.8	6588.0
-40.0	561.6	3473.9	355.9	-2209.6	6973.0	702.7	6767.3
-41.0	561.6	3653.9	374.4	-2371.7	7133.9	720.6	6946.7
-42.0	561.6	3833.8	392.8	-2533.7	7294.9	738.5	7126.1
-43.0	561.6	4013.8	411.3	-2695.7	7455.9	756.4	7305.6
-44.0	561.6	4193.7	429.7	-2857.7	7617.0	774.4	7485.1
-45.0	561.6	4373.6	448.1	-3019.6	7778.1	792.4	7664.6
-46.0	561.6	4553.6	466.6	-3181.5	7939.2	810.5	7844.1
-47.0	561.6	4733.5	485.0	-3343.4	8100.3	828.5	8023.7
-48.0+	561.6	4913.5	503.5	-2203.0	6200.4	846.6	8203.3
-48.0-	561.6	2832.8	312.8	-2203.0	6200.4	1370.5	3890.5
-49.0	561.6	2890.4	370.4	-901.1	4138.9	1427.7	3947.7
-50.0	561.6	2948.0	428.0	-901.4	4138.6	1485.0	4005.0
-51.0	561.6	3005.6	485.6	-901.7	4138.3	1542.3	4062.3
-52.0	561.6	3063.2	543.2	-901.9	4138.1	1599.7	4119.7
-53.0	561.6	3120.8	600.8	-902.2	4137.8	1657.0	4177.0
-54.0	561.6	3178.4	658.4	-902.4	4137.6	1714.4	4234.4
-55.0	561.6	3236.0	716.0	-902.7	4137.3	1771.7	4291.7
-56.0	561.6	3293.6	773.6	-902.9	4137.1	1829.1	4349.1
-57.0+	561.6	3351.2	831.2	-3422.8	7612.9	1886.5	4406.5
-57.0-	561.6	7396.9	591.2	-3422.8	7612.9	892.7	11118.4
-58.0	561.6	7618.3	608.9	-6146.4	11292.4	910.2	11339.7
-59.0	561.6	7839.7	626.6	-6350.3	11495.9	927.8	11560.9
-60.0	561.6	8061.1	644.3	-6554.2	11699.5	945.3	11782.2
-61.0	561.6	8282.5	662.0	-6758.1	11903.0	962.8	12003.4

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS
BY CLASSICAL METHODS

DATE: 15-JANUARY-2011 TIME: 7:02:57

****
* SUMMARY OF RESULTS FOR *
* CANTILEVER WALL DESIGN *
****

I.--HEADING
'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'CANTILEVERED WALL
'SHORT-TERM CONDITION (Q-CASE)

II.--SUMMARY

RIGHTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS
AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

LEFTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS
AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

WALL BOTTOM ELEV. (FT) : -63.10
PENETRATION (FT) : 48.10

Cantilever-Qcase

MAX. BEND. MOMENT (LB-FT) : 2.5703E+05
AT ELEVATION (FT) : -43.49

MAX. SCALED DEFL. (LB-IN^3): 4.4960E+11
AT ELEVATION (FT) : 0.00

NOTE: DIVIDE SCALED DEFLECTION MODULUS OF ELASTICITY IN PSI TIMES PILE MOMENT OF INERTIA IN IN^4 TO OBTAIN DEFLECTION IN INCHES.

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHOREDOR CANTILEVER SHEET PILE WALLS
BY CLASSICAL METHODS

DATE: 15-JANUARY-2011 TIME: 7:02:57

****
* COMPLETE OF RESULTS FOR *
* CANTILEVER WALL DESIGN *
****

I.--HEADING
'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'CANTILEVERED WALL
'SHORT-TERM CONDITION (Q-CASE)

II.--RESULTS0. (LB))

ELEVATION (FT)	BENDING MOMENT (LB-FT)	SHEAR (LB)	SCALED DEFLECTION (LB-IN^3)	NET PRESSURE (PSF)
0.00	0.0000E+00	0.	4.4960E+11	0.00
-1.00	8.3819E-08	0.	4.3844E+11	0.00
-2.00	8.3819E-08	0.	4.2727E+11	0.00
-3.00	8.3819E-08	0.	4.1610E+11	0.00
-3.44	-3.2330E-07	0.	4.1124E+11	0.00
-3.50	5.0026E-03	0.	4.1052E+11	7.10
-3.50	4.9882E-03	0.	4.1052E+11	0.00
-4.00	1.2020E-01	0.	4.0493E+11	0.00
-5.00	3.5064E-01	0.	3.9376E+11	0.00
-6.00	5.8107E-01	0.	3.8260E+11	0.00
-7.00	1.1212E+01	31.	3.7143E+11	62.40
-8.00	8.4242E+01	125.	3.6026E+11	124.80
-9.00	2.8207E+02	281.	3.4909E+11	187.20
-10.00	6.6710E+02	499.	3.3793E+11	249.60
-11.00	1.3017E+03	780.	3.2676E+11	312.00
-11.71	1.9415E+03	1019.	3.1880E+11	356.52
-12.00	2.2485E+03	1125.	3.1560E+11	385.68
-12.00	2.2485E+03	1125.	3.1560E+11	1025.68
-13.00	3.9029E+03	2200.	3.0444E+11	1124.69
-14.00	6.6820E+03	3375.	2.9328E+11	1223.91
-15.00	1.0685E+04	4648.	2.8214E+11	1323.36
-15.00	1.0685E+04	4648.	2.8214E+11	983.36
-16.00	1.5824E+04	5630.	2.7102E+11	980.03
-17.00	2.1944E+04	6608.	2.5993E+11	976.90
-18.00	2.9040E+04	7584.	2.4887E+11	973.98
-19.00	3.7040E+04	8346.	2.3786E+11	551.25
-20.00	4.5592E+04	8686.	2.2692E+11	128.70

Cantilever-Qcase

-21.00	5.4342E+04	8814.	2.1606E+11	126.33
-22.00	6.3219E+04	8939.	2.0529E+11	124.12
-23.00	7.2220E+04	9062.	1.9463E+11	122.07
-24.00	8.1343E+04	9183.	1.8409E+11	120.16
-25.00	9.0586E+04	9303.	1.7369E+11	118.39
-26.00	9.9947E+04	9420.	1.6346E+11	116.74
-27.00	1.0943E+05	9536.	1.5339E+11	115.21
-28.00	1.1902E+05	9651.	1.4351E+11	113.79
-29.00	1.2873E+05	9764.	1.3384E+11	112.47
-30.00	1.3855E+05	9876.	1.2439E+11	111.25
-31.00	1.4848E+05	9986.	1.1518E+11	110.11
-32.00	1.5852E+05	10096.	1.0623E+11	109.05
-32.40	1.6256E+05	10139.	1.0273E+11	108.66
-33.00	1.6867E+05	10204.	9.7554E+10	108.07
-34.00	1.7893E+05	10312.	8.9166E+10	107.15
-35.00	1.8929E+05	10419.	8.1088E+10	106.30
-36.00	1.9976E+05	10525.	7.3338E+10	105.51
-37.00	2.1034E+05	10630.	6.5932E+10	104.77
-38.00	2.2102E+05	10734.	5.8890E+10	104.09
-38.10	2.2206E+05	10739.	5.8229E+10	0.00
-39.00	2.3163E+05	10300.	5.2230E+10	-972.04
-40.00	2.4124E+05	8709.	4.5970E+10	-2209.64
-41.00	2.4882E+05	6419.	4.0126E+10	-2371.70
-42.00	2.5402E+05	3966.	3.4712E+10	-2533.73
-43.00	2.5669E+05	1351.	2.9737E+10	-2695.73
-44.00	2.5667E+05	-1425.	2.5204E+10	-2857.69
-45.00	2.5379E+05	-4364.	2.1115E+10	-3019.62
-46.00	2.4789E+05	-7465.	1.7464E+10	-3181.53
-47.00	2.3881E+05	-10727.	1.4241E+10	-3343.41
-48.00	2.2660E+05	-13500.	1.1431E+10	-2203.00
-49.00	2.1221E+05	-15052.	9.0110E+09	-901.06
-50.00	1.9671E+05	-15954.	6.9579E+09	-901.37
-51.00	1.8031E+05	-16855.	5.2447E+09	-901.66
-52.00	1.6300E+05	-17757.	3.8428E+09	-901.93
-53.00	1.4479E+05	-18659.	2.7225E+09	-902.19
-53.42	1.3692E+05	-19036.	2.3303E+09	-902.29
-54.00	1.2570E+05	-19461.	1.8523E+09	-557.20
-55.00	1.0606E+05	-19721.	1.1992E+09	35.67
-56.00	8.6456E+04	-19389.	7.2943E+08	628.54
-57.00	6.7480E+04	-18464.	4.0910E+08	1221.41
-58.00	4.9725E+04	-16947.	2.0556E+08	1814.28
-59.00	3.3785E+04	-14836.	8.8210E+07	2407.16
-60.00	2.0251E+04	-12132.	2.9583E+07	3000.03
-61.00	9.7177E+03	-8836.	6.3816E+06	3592.90
-62.00	2.7772E+03	-4946.	4.8991E+05	4185.77
-63.00	2.2461E+01	-464.	3.0211E+01	4778.64
-63.10	0.0000E+00	0.	0.0000E+00	4835.89

NOTE: DIVIDE SCALED DEFLECTION MODULUS OF ELASTICITY IN PSI TIMES PILE MOMENT OF INERTIA IN IN^4 TO OBTAIN DEFLECTION IN INCHES.

III.--WATER AND SOIL PRESSURES

		<----------SOIL PRESSURES---------->			
	WATER	<----LEFTSIDE----->		<---RIGHTSIDE---->	
ELEVATION (FT)	PRESSURE (PSF)	PASSIVE (PSF)	ACTIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)
0.00	0.	0.	0.	0.	500.
-1.00	0.	0.	0.	0.	734.
-2.00	0.	0.	0.	0.	843.
-3.00	0.	0.	0.	0.	952.

Cantilever-Qcase

-3.44	0.	0.	0.	0.	1000.
-3.50+	0.	0.	0.	7.	1007.
-3.50+	0.	0.	0.	0.	1487.
-4.00	0.	0.	0.	0.	1537.
-5.00	0.	0.	0.	0.	1638.
-6.00	0.	0.	0.	0.	1738.
-7.00	62.	0.	0.	0.	1777.
-8.00	125.	0.	0.	0.	1815.
-9.00	187.	0.	0.	0.	1854.
-10.00	250.	0.	0.	0.	1893.
-11.00	312.	0.	0.	0.	1932.
-11.71	357.	0.	0.	0.	1960.
-12.00+	374.	0.	0.	11.	1971.
-12.00+	374.	0.	0.	651.	1331.
-13.00	437.	0.	0.	688.	1368.
-14.00	499.	0.	0.	725.	1405.
-15.00+	562.	0.	0.	762.	1442.
-15.00+	562.	340.	0.	762.	1442.
-16.00	562.	381.	0.	799.	1479.
-17.00	562.	421.	0.	837.	1517.
-18.00	562.	462.	0.	874.	1554.
-19.00+	562.	502.	0.	912.	1592.
-19.00+	562.	922.	0.	492.	2012.
-20.00	562.	967.	0.	534.	2054.
-21.00	562.	1012.	0.	576.	2096.
-22.00	562.	1056.	0.	619.	2139.
-23.00	562.	1101.	0.	661.	2181.
-24.00	562.	1145.	0.	704.	2224.
-25.00	562.	1190.	0.	747.	2267.
-26.00	562.	1235.	0.	790.	2310.
-27.00	562.	1279.	0.	833.	2353.
-28.00	562.	1324.	0.	876.	2396.
-29.00	562.	1368.	0.	919.	2439.
-30.00	562.	1413.	0.	963.	2483.
-31.00	562.	1458.	0.	1006.	2526.
-32.00	562.	1502.	0.	1050.	2570.
-32.40	562.	1520.	0.	1067.	2587.
-33.00	562.	1547.	27.	1093.	2613.
-34.00	562.	1591.	71.	1137.	2657.
-35.00	562.	1636.	116.	1181.	2701.
-36.00	562.	1681.	161.	1225.	2745.
-37.00	562.	1725.	205.	1268.	2788.
-38.00	562.	1770.	250.	1312.	2832.
-38.10	562.	1774.	254.	1317.	2837.
-39.00+	562.	1814.	294.	1356.	2876.
-39.00+	562.	3294.	338.	685.	6588.
-40.00	562.	3474.	356.	703.	6767.
-41.00	562.	3654.	374.	721.	6947.
-42.00	562.	3834.	393.	738.	7126.
-43.00	562.	4014.	411.	756.	7306.
-44.00	562.	4194.	430.	774.	7485.
-45.00	562.	4374.	448.	792.	7665.
-46.00	562.	4554.	467.	810.	7844.
-47.00	562.	4734.	485.	829.	8024.
-48.00+	562.	4913.	503.	847.	8203.
-48.00+	562.	2833.	313.	1370.	3890.
-49.00	562.	2890.	370.	1428.	3948.
-50.00	562.	2948.	428.	1485.	4005.
-51.00	562.	3006.	486.	1542.	4062.
-52.00	562.	3063.	543.	1600.	4120.
-53.00	562.	3121.	601.	1657.	4177.
-53.42	562.	3145.	625.	1681.	4201.
-54.00	562.	3178.	658.	1714.	4234.

Cantilever-Qcase

-55.00	562.	3236.	716.	1772.	4292.
-56.00	562.	3294.	774.	1829.	4349.
-57.00+	562.	3351.	831.	1887.	4407.
-57.00+	562.	7397.	591.	893.	11118.
-58.00	562.	7618.	609.	910.	11340.
-59.00	562.	7840.	627.	928.	11561.
-60.00	562.	8061.	644.	945.	11782.
-61.00	562.	8283.	662.	963.	12003.
-62.00+	562.	8504.	680.	980.	12225.
-62.00+	562.	4014.	794.	1849.	5069.
-63.00	562.	4072.	852.	1906.	5126.
-63.10	562.	4129.	909.	1964.	5184.
-65.00	562.	4187.	967.	2021.	5241.

Cantilever-Scase

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS
BY CLASSICAL METHODS

DATE: 15-JANUARY-2011 TIME: 7:07:17

****
* INPUT DATA *
****

I.--HEADING
'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'CANTILEVERED WALL
'LONG-TERM CONDITION (S-CASE)

II.--CONTROL
CANTILEVER WALL DESIGN
FACTOR OF SAFETY FOR ACTIVE PRESSURES = 1.00
FACTOR OF SAFETY FOR PASSIVE PRESSURES = 1.00

III.--WALL DATA
ELEVATION AT TOP OF WALL = 0.00 FT.

IV.--SURFACE POINT DATA

IV.A.--RIGHTSIDE

DIST. FROM WALL (FT)	ELEVATION (FT)
27.00	0.00

IV.B.--LEFTSIDE

DIST. FROM WALL (FT)	ELEVATION (FT)
50.00	-15.00

V.--SOIL LAYER DATA

V.A.--RIGHTSIDE
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURE = DEFAULT
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURE = DEFAULT

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH-ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH-ESION (PSF)	<--BOTTOM--> ELEV. (FT)	SLOPE (FT/FT)	<-SAFETY-> <-FACTOR-> ACT.	PASS.
115.00	115.00	23.00	0.00	0.00	0.00	-3.50	0.00	DEF	DEF
106.00	106.00	23.00	0.00	0.00	0.00	-12.00	0.00	DEF	DEF
103.00	103.00	23.00	0.00	0.00	0.00	-19.00	0.00	DEF	DEF
107.00	107.00	23.00	0.00	0.00	0.00	-39.00	0.00	DEF	DEF
120.00	120.00	31.00	0.00	0.00	0.00	-48.00	0.00	DEF	DEF
120.00	120.00	25.00	0.00	0.00	0.00	-57.00	0.00	DEF	DEF
125.00	125.00	34.00	0.00	0.00	0.00	-62.00	0.00	DEF	DEF
120.00	120.00	25.00	0.00	0.00	0.00	-72.00	0.00	DEF	DEF
125.00	125.00	35.00	0.00	0.00	0.00			DEF	DEF

V.B.--LEFTSIDE
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURE = DEFAULT
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURE = DEFAULT

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH-ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH-ESION (PSF)	<--BOTTOM--> ELEV. (FT)	SLOPE (FT/FT)	<-SAFETY-> <-FACTOR-> ACT.	PASS.
103.00	103.00	23.00	0.00	0.00	0.00	-19.00	0.00	DEF	DEF

				Cantilever-Scase					
107.00	107.00	23.00	0.00	0.00	0.00	-39.00	0.00	DEF	DEF
120.00	120.00	31.00	0.00	0.00	0.00	-48.00	0.00	DEF	DEF
120.00	120.00	25.00	0.00	0.00	0.00	-57.00	0.00	DEF	DEF
125.00	125.00	34.00	0.00	0.00	0.00	-62.00	0.00	DEF	DEF
120.00	120.00	25.00	0.00	0.00	0.00	-72.00	0.00	DEF	DEF
125.00	125.00	35.00	0.00	0.00	0.00			DEF	DEF

VI.--WATER DATA
UNIT WEIGHT = 62.40 (PCF)
RIGHTSIDE ELEVATION = -6.00 (FT)
LEFTSIDE ELEVATION = -15.00 (FT)
NO SEEPAGE

VII.--VERTICAL SURCHARGE LOADS

VII.A.--VERTICAL LINE LOADS
NONE

VII.B.--VERTICAL UNIFORM LOADS
NONE

VII.C.--VERTICAL STRIP LOADS

VII.C.1.--RIGHTSIDE
<-DIST. FROM WALL->

START (FT)	END (FT)	STRIP LOAD (PSF)
0.00	27.00	250.00

VII.C.2.--LEFTSIDE
NONE

VII.D.--VERTICAL RAMP LOADS
NONE

VII.E.--VERTICAL TRIANGULAR LOADS
NONE

VII.F.--VERTICAL VARIABLE LOADS
NONE

VIII.--HORIZONTAL LOADS
NONE

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS
BY CLASSICAL METHODS

DATE: 15-JANUARY-2011 TIME: 7:07:21

****
* SOIL PRESSURES FOR *
* CANTILEVER WALL DESIGN *
****

I.--HEADING

'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'CANTILEVERED WALL
'LONG-TERM CONDITION (S-CASE)

II.--SOIL PRESSURES

RIGHTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

LEFTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

				<------NET------>			
	NET	<---LEFTSIDE--->		(SOIL + WATER)		<--RIGHTSIDE--->	
ELEV.	WATER	PASSIVE	ACTIVE	ACTIVE	PASSIVE	ACTIVE	PASSIVE
(FT)	(PSF)	(PSF)	(PSF)	(PSF)	(PSF)	(PSF)	(PSF)
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-1.0	0.0	0.0	0.0	169.5	381.6	169.5	381.6
-2.0	0.0	0.0	0.0	214.0	638.3	214.0	638.3
-3.0	0.0	0.0	0.0	258.6	895.0	258.6	895.0
-3.5	0.0	0.0	0.0	280.9	1023.4	280.9	1023.4
-4.0	0.0	0.0	0.0	301.3	1141.5	301.3	1141.5
-5.0	0.0	0.0	0.0	342.2	1377.9	342.2	1377.9
-6.0	0.0	0.0	0.0	383.2	1614.4	383.2	1614.4
-7.0	62.4	0.0	0.0	459.4	1771.1	397.0	1708.7
-8.0	124.8	0.0	0.0	535.8	1927.9	411.0	1803.1
-9.0	187.2	0.0	0.0	612.5	2084.9	425.3	1897.7
-10.0	249.6	0.0	0.0	689.3	2242.2	439.7	1992.6
-11.0	312.0	0.0	0.0	766.3	2399.7	454.3	2087.7
-12.0	374.4	0.0	0.0	843.6	2557.4	469.2	2183.0
-13.0	436.8	0.0	0.0	919.8	2708.4	483.0	2271.6
-14.0	499.2	0.0	0.0	996.2	2859.7	497.0	2360.5
-15.0	561.6	0.0	0.0	1072.9	3011.3	511.3	2449.7
-16.0	561.6	92.7	17.8	994.6	3082.8	525.7	2539.0
-17.0	561.6	185.3	35.6	916.6	3154.6	540.4	2628.6
-18.0	561.6	278.0	53.4	838.8	3226.6	555.2	2718.3
-19.0	561.6	370.7	71.1	761.2	3298.7	570.3	2808.3
-20.0	561.6	472.5	90.7	676.4	3378.4	587.3	2907.5
-21.0	561.6	574.3	110.2	591.7	3458.3	604.4	3006.9
-22.0	561.6	676.1	129.8	507.3	3538.4	621.8	3106.5
-23.0	561.6	777.9	149.3	422.9	3618.6	639.3	3206.3
-24.0	561.6	879.7	168.8	338.8	3699.0	656.9	3306.2
-25.0	561.6	981.5	188.4	254.7	3779.4	674.7	3406.2
-26.0	561.6	1083.3	207.9	170.8	3860.1	692.6	3506.4
-27.0	561.6	1185.1	227.5	87.0	3940.8	710.6	3606.7
-28.0	561.6	1286.9	247.0	3.3	4021.6	728.7	3707.0
-28.0	561.6	1291.0	247.8	0.0	4024.9	729.4	3711.1
-29.0	561.6	1388.7	266.5	-80.2	4102.6	746.9	3807.5
-30.0	561.6	1490.6	286.1	-163.7	4183.6	765.2	3908.1
-31.0	561.6	1592.4	305.6	-247.1	4264.8	783.6	4008.8
-32.0	561.6	1694.2	325.2	-330.5	4346.0	802.1	4109.5
-33.0	561.6	1796.0	344.7	-413.7	4427.3	820.7	4210.3
-34.0	561.6	1897.8	364.2	-496.9	4508.6	839.3	4311.2
-35.0	561.6	1999.6	383.8	-580.0	4590.0	858.0	4412.2
-36.0	561.6	2101.4	403.3	-663.1	4671.5	876.7	4513.2
-37.0	561.6	2203.2	422.8	-746.1	4753.0	895.5	4614.3
-38.0	561.6	2305.0	442.4	-829.0	4834.6	914.4	4715.4
-39.0+	561.6	2406.8	461.9	-1479.7	5864.1	933.3	4816.6
-39.0-	561.6	3294.0	337.5	-1479.7	5864.1	684.8	6588.0
-40.0	561.6	3473.9	355.9	-2209.6	6973.0	702.7	6767.3
-41.0	561.6	3653.9	374.4	-2371.7	7133.9	720.6	6946.7
-42.0	561.6	3833.8	392.8	-2533.7	7294.9	738.5	7126.1

Cantilever-Scase

-43.0	561.6	4013.8	411.3	-2695.7	7455.9	756.4	7305.6
-44.0	561.6	4193.7	429.7	-2857.7	7617.0	774.4	7485.1
-45.0	561.6	4373.6	448.1	-3019.6	7778.1	792.4	7664.6
-46.0	561.6	4553.6	466.6	-3181.5	7939.2	810.5	7844.1
-47.0	561.6	4733.5	485.0	-3343.4	8100.3	828.5	8023.7
-48.0+	561.6	4913.5	503.5	-2873.6	7328.0	846.6	8203.3
-48.0-	561.6	3875.2	638.3	-2873.6	7328.0	1071.6	6471.3
-49.0	561.6	4017.2	661.7	-2360.9	6512.8	1094.7	6612.9
-50.0	561.6	4159.1	685.1	-2479.7	6631.1	1117.7	6754.5
-51.0	561.6	4301.0	708.5	-2598.6	6749.3	1140.8	6896.2
-52.0	561.6	4442.9	731.8	-2717.4	6867.6	1163.9	7037.8
-53.0	561.6	4584.8	755.2	-2836.2	6985.9	1187.0	7179.5
-54.0	561.6	4726.8	778.6	-2955.0	7104.2	1210.2	7321.2
-55.0	561.6	4868.7	802.0	-3073.8	7222.5	1233.3	7462.9
-56.0	561.6	5010.6	825.4	-3192.5	7340.8	1256.5	7604.6
-57.0+	561.6	5152.5	848.7	-4626.9	9274.0	1279.7	7746.3
-57.0-	561.6	7396.9	591.2	-4626.9	9274.0	892.7	11118.4
-58.0	561.6	7618.3	608.9	-6146.4	11292.4	910.2	11339.7
-59.0	561.6	7839.7	626.6	-6350.3	11495.9	927.8	11560.9
-60.0	561.6	8061.1	644.3	-6554.2	11699.5	945.3	11782.2
-61.0	561.6	8282.5	662.0	-6758.1	11903.0	962.8	12003.4

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS
BY CLASSICAL METHODS

DATE: 15-JANUARY-2011 TIME: 7:09:39

****
* SUMMARY OF RESULTS FOR *
* CANTILEVER WALL DESIGN *
****

I.--HEADING
'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'CANTILEVERED WALL
'LONG-TERM CONDITION (S-CASE)

II.--SUMMARY

RIGHTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS
AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

LEFTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS
AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

WALL BOTTOM ELEV. (FT) : -63.26
PENETRATION (FT) : 48.26

MAX. BEND. MOMENT (LB-FT) : 3.7766E+05
AT ELEVATION (FT) : -43.23

MAX. SCALED DEFL. (LB-IN^3): 7.2163E+11
AT ELEVATION (FT) : 0.00

Cantilever-Scase

NOTE: DIVIDE SCALED DEFLECTION MODULUS OF ELASTICITY IN PSI TIMES PILE MOMENT OF INERTIA IN IN^4 TO OBTAIN DEFLECTION IN INCHES.

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHOREDOR CANTILEVER SHEET PILE WALLS BY CLASSICAL METHODS

DATE: 15-JANUARY-2011 TIME: 7:09:39

****
* COMPLETE OF RESULTS FOR *
* CANTILEVER WALL DESIGN *
****

I.--HEADING
'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'CANTILEVERED WALL
'LONG-TERM CONDITION (S-CASE)

II.--RESULTS0. (LB))

ELEVATION (FT)	BENDING MOMENT (LB-FT)	SHEAR (LB)	SCALED DEFLECTION (LB-IN^3)	NET PRESSURE (PSF)
0.00	0.0000E+00	0.	7.2163E+11	0.00
-1.00	2.8249E+01	85.	7.0329E+11	169.49
-2.00	2.0516E+02	276.	6.8496E+11	214.01
-3.00	5.9610E+02	513.	6.6663E+11	258.60
-3.50	8.8576E+02	648.	6.5746E+11	280.93
-4.00	1.2456E+03	793.	6.4829E+11	301.31
-5.00	2.1963E+03	1115.	6.2996E+11	342.17
-6.00	3.4892E+03	1478.	6.1164E+11	383.17
-7.00	5.1711E+03	1899.	5.9332E+11	459.41
-8.00	7.3125E+03	2397.	5.7501E+11	535.83
-9.00	9.9898E+03	2971.	5.5671E+11	612.45
-10.00	1.3280E+04	3622.	5.3843E+11	689.29
-11.00	1.7259E+04	4349.	5.2017E+11	766.34
-12.00	2.2004E+04	5154.	5.0194E+11	843.62
-13.00	2.7593E+04	6036.	4.8375E+11	919.81
-14.00	3.4102E+04	6994.	4.6561E+11	996.22
-15.00	4.1607E+04	8029.	4.4752E+11	1072.85
-16.00	5.0159E+04	9062.	4.2951E+11	994.63
-17.00	5.9705E+04	10018.	4.1159E+11	916.62
-18.00	7.0169E+04	10896.	3.9377E+11	838.81
-19.00	8.1471E+04	11696.	3.7607E+11	761.19
-20.00	9.3533E+04	12414.	3.5851E+11	676.38
-21.00	1.0627E+05	13049.	3.4111E+11	591.74
-22.00	1.1960E+05	13598.	3.2390E+11	507.26
-23.00	1.3344E+05	14063.	3.0689E+11	422.95
-24.00	1.4770E+05	14444.	2.9012E+11	338.77
-25.00	1.6230E+05	14741.	2.7360E+11	254.73
-26.00	1.7715E+05	14954.	2.5736E+11	170.82
-27.00	1.9218E+05	15082.	2.4142E+11	87.02
-28.00	2.0729E+05	15128.	2.2582E+11	3.34
-28.04	2.0789E+05	15128.	2.2520E+11	0.00
-29.00	2.2241E+05	15089.	2.1058E+11	-80.25
-30.00	2.3744E+05	14967.	1.9572E+11	-163.74
-31.00	2.5231E+05	14762.	1.8127E+11	-247.14

		Cantilever-Scase		
-32.00	2.6694E+05	14473.	1.6726E+11	-330.47
-33.00	2.8123E+05	14101.	1.5370E+11	-413.72
-34.00	2.9511E+05	13646.	1.4064E+11	-496.90
-35.00	3.0849E+05	13107.	1.2808E+11	-580.01
-36.00	3.2130E+05	12486.	1.1606E+11	-663.07
-37.00	3.3344E+05	11781.	1.0459E+11	-746.08
-38.00	3.4483E+05	10993.	9.3698E+10	-829.03
-39.00	3.5530E+05	9839.	8.3402E+10	-1479.73
-40.00	3.6428E+05	7994.	7.3719E+10	-2209.64
-41.00	3.7114E+05	5704.	6.4666E+10	-2371.70
-42.00	3.7563E+05	3251.	5.6254E+10	-2533.73
-43.00	3.7759E+05	636.	4.8490E+10	-2695.73
-44.00	3.7685E+05	-2140.	4.1379E+10	-2857.69
-45.00	3.7326E+05	-5079.	3.4918E+10	-3019.62
-46.00	3.6664E+05	-8180.	2.9102E+10	-3181.53
-47.00	3.5684E+05	-11442.	2.3919E+10	-3343.41
-48.00	3.4381E+05	-14551.	1.9352E+10	-2873.64
-49.00	3.2790E+05	-17168.	1.5379E+10	-2360.89
-50.00	3.0954E+05	-19588.	1.1972E+10	-2479.75
-51.00	2.8869E+05	-22127.	9.0995E+09	-2598.58
-52.00	2.6524E+05	-24785.	6.7256E+09	-2717.40
-53.00	2.3908E+05	-27562.	4.8096E+09	-2836.20
-53.04	2.3808E+05	-27665.	4.7483E+09	-2840.50
-54.00	2.1026E+05	-29899.	3.3063E+09	-1794.95
-55.00	1.7964E+05	-31151.	2.1662E+09	-710.13
-56.00	1.4832E+05	-31319.	1.3363E+09	374.69
-57.00	1.1737E+05	-30402.	7.6275E+08	1459.52
-58.00	8.7874E+04	-28400.	3.9224E+08	2544.34
-59.00	6.0927E+04	-25313.	1.7394E+08	3629.17
-60.00	3.7609E+04	-21142.	6.1438E+07	4713.99
-61.00	1.9005E+04	-15885.	1.4608E+07	5798.81
-62.00	6.1997E+03	-9544.	1.4532E+06	6883.64
-63.00	2.7824E+02	-2118.	2.7485E+03	7968.46
-63.26	0.0000E+00	0.	0.0000E+00	8251.77

NOTE: DIVIDE SCALED DEFLECTION MODULUS OF ELASTICITY IN PSI TIMES PILE MOMENT OF INERTIA IN IN^4 TO OBTAIN DEFLECTION IN INCHES.

III.--WATER AND SOIL PRESSURES

		<----------SOIL PRESSURES---------->			
	WATER	<----LEFTSIDE----->		<---RIGHTSIDE---->	
ELEVATION (FT)	PRESSURE (PSF)	PASSIVE (PSF)	ACTIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)
0.00	0.	0.	0.	0.	0.
-1.00	0.	0.	0.	169.	382.
-2.00	0.	0.	0.	214.	638.
-3.00	0.	0.	0.	259.	895.
-3.50	0.	0.	0.	281.	1023.
-4.00	0.	0.	0.	301.	1141.
-5.00	0.	0.	0.	342.	1378.
-6.00	0.	0.	0.	383.	1614.
-7.00	62.	0.	0.	397.	1709.
-8.00	125.	0.	0.	411.	1803.
-9.00	187.	0.	0.	425.	1898.
-10.00	250.	0.	0.	440.	1993.
-11.00	312.	0.	0.	454.	2088.
-12.00	374.	0.	0.	469.	2183.
-13.00	437.	0.	0.	483.	2272.
-14.00	499.	0.	0.	497.	2361.
-15.00	562.	0.	0.	511.	2450.

Cantilever-Scase

-16.00	562.	93.	18.	526.	2539.
-17.00	562.	185.	36.	540.	2629.
-18.00	562.	278.	53.	555.	2718.
-19.00	562.	371.	71.	570.	2808.
-20.00	562.	473.	91.	587.	2908.
-21.00	562.	574.	110.	604.	3007.
-22.00	562.	676.	130.	622.	3107.
-23.00	562.	778.	149.	639.	3206.
-24.00	562.	880.	169.	657.	3306.
-25.00	562.	982.	188.	675.	3406.
-26.00	562.	1083.	208.	693.	3506.
-27.00	562.	1185.	227.	711.	3607.
-28.00	562.	1287.	247.	729.	3707.
-28.04	562.	1291.	248.	729.	3711.
-29.00	562.	1389.	267.	747.	3808.
-30.00	562.	1491.	286.	765.	3908.
-31.00	562.	1592.	306.	784.	4009.
-32.00	562.	1694.	325.	802.	4110.
-33.00	562.	1796.	345.	821.	4210.
-34.00	562.	1898.	364.	839.	4311.
-35.00	562.	2000.	384.	858.	4412.
-36.00	562.	2101.	403.	877.	4513.
-37.00	562.	2203.	423.	896.	4614.
-38.00	562.	2305.	442.	914.	4715.
-39.00+	562.	2407.	462.	933.	4817.
-39.00+	562.	3294.	338.	685.	6588.
-40.00	562.	3474.	356.	703.	6767.
-41.00	562.	3654.	374.	721.	6947.
-42.00	562.	3834.	393.	738.	7126.
-43.00	562.	4014.	411.	756.	7306.
-44.00	562.	4194.	430.	774.	7485.
-45.00	562.	4374.	448.	792.	7665.
-46.00	562.	4554.	467.	810.	7844.
-47.00	562.	4734.	485.	829.	8024.
-48.00+	562.	4913.	503.	847.	8203.
-48.00+	562.	3875.	638.	1072.	6471.
-49.00	562.	4017.	662.	1095.	6613.
-50.00	562.	4159.	685.	1118.	6755.
-51.00	562.	4301.	708.	1141.	6896.
-52.00	562.	4443.	732.	1164.	7038.
-53.00	562.	4585.	755.	1187.	7179.
-53.04	562.	4590.	756.	1188.	7185.
-54.00	562.	4727.	779.	1210.	7321.
-55.00	562.	4869.	802.	1233.	7463.
-56.00	562.	5011.	825.	1256.	7605.
-57.00+	562.	5153.	849.	1280.	7746.
-57.00+	562.	7397.	591.	893.	11118.
-58.00	562.	7618.	609.	910.	11340.
-59.00	562.	7840.	627.	928.	11561.
-60.00	562.	8061.	644.	945.	11782.
-61.00	562.	8283.	662.	963.	12003.
-62.00+	562.	8504.	680.	980.	12225.
-62.00+	562.	5924.	976.	1406.	8517.
-63.00	562.	6066.	999.	1429.	8658.
-63.26	562.	6208.	1023.	1452.	8800.
-65.00	562.	6350.	1046.	1476.	8942.

Anchored el. -15 Q-case

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS
BY CLASSICAL METHODS

DATE: 15-JANUARY-2011 TIME: 7:16:06

****
* INPUT DATA *
****

I.--HEADING
'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'ANCHORED WALL - BRACED BY SLAB AT ELEV. -15
'SHORT-TERM CONDITION (Q-CASE)

II.--CONTROL
ANCHORED WALL DESIGN
FACTOR OF SAFETY FOR ACTIVE PRESSURES = 1.00
FACTOR OF SAFETY FOR PASSIVE PRESSURES = 1.00

III.--WALL DATA
ELEVATION AT TOP OF WALL = 0.00 FT.
ELEVATION AT ANCHOR = -15.00 FT.

IV.--SURFACE POINT DATA

IV.A.--RIGHTSIDE

DIST. FROM WALL (FT)	ELEVATION (FT)
27.00	0.00

IV.B.--LEFTSIDE

DIST. FROM WALL (FT)	ELEVATION (FT)
50.00	-15.00

V.--SOIL LAYER DATA

V.A.--RIGHTSIDE
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURE = DEFAULT
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURE = DEFAULT

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH-ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH-ESION (PSF)	<--BOTTOM--> ELEV. (FT)	SLOPE (FT/FT)	<-SAFETY-> <-FACTOR-> ACT.	PASS.
115.00	115.00	0.00	250.00	0.00	0.00	-3.50	0.00	DEF	DEF
106.00	106.00	0.00	490.00	0.00	0.00	-12.00	0.00	DEF	DEF
103.00	103.00	0.00	170.00	0.00	0.00	-19.00	0.00	DEF	DEF
107.00	107.00	0.00	380.00	0.00	0.00	-39.00	0.00	DEF	DEF
120.00	120.00	31.00	0.00	0.00	0.00	-48.00	0.00	DEF	DEF
120.00	120.00	0.00	630.00	0.00	0.00	-57.00	0.00	DEF	DEF
125.00	125.00	34.00	0.00	0.00	0.00	-62.00	0.00	DEF	DEF
120.00	120.00	0.00	805.00	0.00	0.00	-72.00	0.00	DEF	DEF
125.00	125.00	35.00	0.00	0.00	0.00			DEF	DEF

V.B.--LEFTSIDE
LEVEL 2 FACTOR OF SAFETY FOR ACTIVE PRESSURE = DEFAULT
LEVEL 2 FACTOR OF SAFETY FOR PASSIVE PRESSURE = DEFAULT

SAT. WGHT. (PCF)	MOIST WGHT. (PCF)	ANGLE OF INTERNAL FRICTION (DEG)	COH-ESION (PSF)	ANGLE OF WALL FRICTION (DEG)	ADH-ESION (PSF)	<--BOTTOM--> ELEV. (FT)	SLOPE (FT/FT)	<-SAFETY-> <-FACTOR-> ACT.	PASS.

Anchored el. -15 Q-case

103.00	103.00	0.00	170.00	0.00	0.00	-19.00	0.00	DEF	DEF
107.00	107.00	0.00	380.00	0.00	0.00	-39.00	0.00	DEF	DEF
120.00	120.00	31.00	0.00	0.00	0.00	-48.00	0.00	DEF	DEF
120.00	120.00	0.00	630.00	0.00	0.00	-57.00	0.00	DEF	DEF
125.00	125.00	34.00	0.00	0.00	0.00	-62.00	0.00	DEF	DEF
120.00	120.00	0.00	805.00	0.00	0.00	-72.00	0.00	DEF	DEF
125.00	125.00	35.00	0.00	0.00	0.00			DEF	DEF

VI.--WATER DATA
UNIT WEIGHT = 62.40 (PCF)
RIGHTSIDE ELEVATION = -6.00 (FT)
LEFTSIDE ELEVATION = -15.00 (FT)
NO SEEPAGE

VII.--VERTICAL SURCHARGE LOADS

VII.A.--VERTICAL LINE LOADS
NONE

VII.B.--VERTICAL UNIFORM LOADS
NONE

VII.C.--VERTICAL STRIP LOADS

VII.C.1.--RIGHTSIDE
<-DIST. FROM WALL->

START (FT)	END (FT)	STRIP LOAD (PSF)
0.00	27.00	250.00

VII.C.2.--LEFTSIDE
NONE

VII.D.--VERTICAL RAMP LOADS
NONE

VII.E.--VERTICAL TRIANGULAR LOADS
NONE

VII.F.--VERTICAL VARIABLE LOADS
NONE

VIII.--HORIZONTAL LOADS
NONE

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS
BY CLASSICAL METHODS

DATE: 15-JANUARY-2011 TIME: 7:16:08

****
* SOIL PRESSURES FOR *
* ANCHORED WALL DESIGN *
****

Anchored el. -15 Q-case

I.--HEADING
'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'ANCHORED WALL - BRACED BY SLAB AT ELEV. -15
'SHORT-TERM CONDITION (Q-CASE)

II.--SOIL PRESSURES

RIGHTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

LEFTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

				<------NET------>		
	NET	<---LEFTSIDE--->		(SOIL + WATER)	<--RIGHTSIDE--->	
ELEV.	WATER	PASSIVE	ACTIVE	ACTIVE	ACTIVE	PASSIVE
(FT)	(PSF)	(PSF)	(PSF)	(PSF)	(PSF)	(PSF)
0.0	0.0	0.0	0.0	0.0	0.0	500.0
-1.0	0.0	0.0	0.0	0.0	0.0	734.1
-2.0	0.0	0.0	0.0	0.0	0.0	843.3
-3.0	0.0	0.0	0.0	0.0	0.0	952.5
-3.4	0.0	0.0	0.0	0.0	0.0	1000.0
-3.5+	0.0	0.0	0.0	7.1	7.1	1007.1
-3.5-	0.0	0.0	0.0	0.0	0.0	1487.1
-4.0	0.0	0.0	0.0	0.0	0.0	1537.3
-5.0	0.0	0.0	0.0	0.0	0.0	1637.7
-6.0	0.0	0.0	0.0	0.0	0.0	1738.2
-7.0	62.4	0.0	0.0	62.4	0.0	1776.6
-8.0	124.8	0.0	0.0	124.8	0.0	1815.1
-9.0	187.2	0.0	0.0	187.2	0.0	1853.8
-10.0	249.6	0.0	0.0	249.6	0.0	1892.8
-11.0	312.0	0.0	0.0	312.0	0.0	1931.9
-11.7	356.5	0.0	0.0	356.5	0.0	1960.0
-12.0+	374.4	0.0	0.0	385.7	11.3	1971.3
-12.0-	374.4	0.0	0.0	1025.7	651.3	1331.3
-13.0	436.8	0.0	0.0	1124.7	687.9	1367.9
-14.0	499.2	0.0	0.0	1223.9	724.7	1404.7
-15.0+	561.6	0.0	0.0	1323.4	761.8	1441.8
-15.0-	561.6	340.0	0.0	983.4	761.8	1441.8
-16.0	561.6	380.6	0.0	980.0	799.0	1479.0
-17.0	561.6	421.2	0.0	976.9	836.5	1516.5
-18.0	561.6	461.8	0.0	974.0	874.2	1554.2
-19.0+	561.6	502.4	0.0	551.2	912.0	1592.0
-19.0-	561.6	922.4	0.0	551.2	492.0	2012.0
-20.0	561.6	967.0	0.0	128.7	534.1	2054.1
-21.0	561.6	1011.6	0.0	126.3	576.3	2096.3
-22.0	561.6	1056.2	0.0	124.1	618.7	2138.7
-23.0	561.6	1100.8	0.0	122.1	661.3	2181.3
-24.0	561.6	1145.4	0.0	120.2	704.0	2224.0
-25.0	561.6	1190.0	0.0	118.4	746.8	2266.8
-26.0	561.6	1234.6	0.0	116.7	789.7	2309.7
-27.0	561.6	1279.2	0.0	115.2	832.8	2352.8
-28.0	561.6	1323.8	0.0	113.8	876.0	2396.0
-29.0	561.6	1368.4	0.0	112.5	919.3	2439.3
-30.0	561.6	1413.0	0.0	111.2	962.6	2482.6
-31.0	561.6	1457.6	0.0	110.1	1006.1	2526.1
-32.0	561.6	1502.2	0.0	109.1	1049.7	2569.7
-32.4	561.6	1520.0	0.0	108.7	1067.1	2587.1
-33.0	561.6	1546.8	26.8	108.1	1093.3	2613.3
-34.0	561.6	1591.4	71.4	107.2	1137.0	2657.0
-35.0	561.6	1636.0	116.0	106.3	1180.7	2700.7
-36.0	561.6	1680.6	160.6	105.5	1224.5	2744.5

Anchored el. -15 Q-case

-37.0	561.6	1725.2	205.2	104.8	1268.4	2788.4
-38.0	561.6	1769.8	249.8	104.1	1312.3	2832.3
-38.1	561.6	1774.1	254.1	0.0	1316.5	2836.5
-39.0+	561.6	1814.4	294.4	-972.0	1356.2	2876.2
-39.0-	561.6	3294.0	337.5	-972.0	684.8	6588.0
-40.0	561.6	3473.9	355.9	-2209.6	702.7	6767.3
-41.0	561.6	3653.9	374.4	-2371.7	720.6	6946.7
-42.0	561.6	3833.8	392.8	-2533.7	738.5	7126.1
-43.0	561.6	4013.8	411.3	-2695.7	756.4	7305.6
-44.0	561.6	4193.7	429.7	-2857.7	774.4	7485.1
-45.0	561.6	4373.6	448.1	-3019.6	792.4	7664.6
-46.0	561.6	4553.6	466.6	-3181.5	810.5	7844.1
-47.0	561.6	4733.5	485.0	-3343.4	828.5	8023.7
-48.0+	561.6	4913.5	503.5	-2203.0	846.6	8203.3
-48.0-	561.6	2832.8	312.8	-2203.0	1370.5	3890.5
-49.0	561.6	2890.4	370.4	-901.1	1427.7	3947.7
-50.0	561.6	2948.0	428.0	-901.4	1485.0	4005.0
-51.0	561.6	3005.6	485.6	-901.7	1542.3	4062.3
-52.0	561.6	3063.2	543.2	-901.9	1599.7	4119.7
-53.0	561.6	3120.8	600.8	-902.2	1657.0	4177.0
-54.0	561.6	3178.4	658.4	-902.4	1714.4	4234.4
-55.0	561.6	3236.0	716.0	-902.7	1771.7	4291.7
-56.0	561.6	3293.6	773.6	-902.9	1829.1	4349.1
-57.0+	561.6	3351.2	831.2	-3422.8	1886.5	4406.5
-57.0-	561.6	7396.9	591.2	-3422.8	892.7	11118.4
-58.0	561.6	7618.3	608.9	-6146.4	910.2	11339.7
-59.0	561.6	7839.7	626.6	-6350.3	927.8	11560.9
-60.0	561.6	8061.1	644.3	-6554.2	945.3	11782.2
-61.0	561.6	8282.5	662.0	-6758.1	962.8	12003.4

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHORED OR CANTILEVER SHEET PILE WALLS
BY CLASSICAL METHODS

DATE: 15-JANUARY-2011 TIME: 7:16:09

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* SUMMARY OF RESULTS FOR *
* ANCHORED WALL DESIGN *
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I.--HEADING
'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'ANCHORED WALL - BRACED BY SLAB AT ELEV. -15
'SHORT-TERM CONDITION (Q-CASE)

II.--SUMMARY

RIGHTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS
AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

LEFTSIDE SOIL PRESSURES DETERMINED BY COULOMB COEFFICIENTS
AND THEORY OF ELASTICITY EQUATIONS FOR SURCHARGE LOADS.

METHOD : FREE EARTH FIXED EARTH

Anchored el. -15 Q-case

WALL BOTTOM ELEVATION (FT)	-39.50	-41.78
PENETRATION (FT)	24.50	26.78
MAXIMUM BENDING MOMENT (LB-FT)	1.0685E+04	1.0685E+04
AT ELEVATION (FT)	-15.00	-15.00
MAXIMUM SCALED DEFLECTION (LB-IN^3)	6.4825E+08	3.2456E+08
AT ELEVATION (FT)	-28.00	-27.00
ANCHOR FORCE (LB)	9.6585E+03	9.4510E+03

NOTE: DIVIDE SCALED DEFLECTION MODULUS OF ELASTICITY IN PSI TIMES PILE MOMENT OF INERTIA IN IN^4 TO OBTAIN DEFLECTION IN INCHES.

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHOREDOR CANTILEVER SHEET PILE WALLS BY CLASSICAL METHODS

DATE: 15-JANUARY-2011 TIME: 7:16:09

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* COMPLETE OF RESULTS FOR   *
*    ANCHORED WALL DESIGN   *
*    BY FREE EARTH METHOD   *
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I.--HEADING
'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'ANCHORED WALL - BRACED BY SLAB AT ELEV. -15
'SHORT-TERM CONDITION (Q-CASE)

II.--RESULTS (ANCHOR FORCE= 9659. (LB))

ELEVATION (FT)	BENDING MOMENT (LB-FT)	SHEAR (LB)	SCALED DEFLECTION (LB-IN^3)	NET PRESSURE (PSF)
0.00	0.0000E+00	0.	-2.9526E+08	0.00
-1.00	2.1828E-11	0.	-2.7939E+08	0.00
-2.00	2.1828E-11	0.	-2.6351E+08	0.00
-3.00	2.1828E-11	0.	-2.4763E+08	0.00
-3.44	-1.0468E-10	0.	-2.4072E+08	0.00
-3.50	4.9883E-03	0.	-2.3969E+08	7.10
-3.50	4.9883E-03	0.	-2.3969E+08	0.00
-4.00	1.2020E-01	0.	-2.3175E+08	0.00
-5.00	3.5064E-01	0.	-2.1588E+08	0.00
-6.00	5.8107E-01	0.	-2.0000E+08	0.00
-7.00	1.1212E+01	31.	-1.8412E+08	62.40
-8.00	8.4242E+01	125.	-1.6821E+08	124.80
-9.00	2.8207E+02	281.	-1.5214E+08	187.20
-10.00	6.6710E+02	499.	-1.3555E+08	249.60
-11.00	1.3017E+03	780.	-1.1777E+08	312.00
-11.71	1.9415E+03	1019.	-1.0378E+08	356.52
-12.00	2.2485E+03	1125.	-9.7705E+07	385.68
-12.00	2.2485E+03	1125.	-9.7705E+07	1025.68
-13.00	3.9029E+03	2200.	-7.3649E+07	1124.69
-14.00	6.6820E+03	3375.	-4.2686E+07	1223.91
-15.00	1.0685E+04	4648.	0.0000E+00	1323.36

Anchored el. -15 Q-case

-15.00	1.0685E+04	-5010.	0.0000E+00	983.36
-16.00	6.1659E+03	-4029.	5.8532E+07	980.03
-17.00	2.6267E+03	-3050.	1.2786E+08	976.90
-18.00	6.4501E+01	-2075.	2.0187E+08	973.98
-19.00	-1.5937E+03	-1312.	2.7612E+08	551.25
-20.00	-2.7006E+03	-972.	3.4770E+08	128.70
-21.00	-3.6088E+03	-845.	4.1464E+08	126.33
-22.00	-4.3907E+03	-719.	4.7536E+08	124.12
-23.00	-5.0483E+03	-596.	5.2851E+08	122.07
-24.00	-5.5839E+03	-475.	5.7295E+08	120.16
-25.00	-5.9993E+03	-356.	6.0776E+08	118.39
-26.00	-6.2963E+03	-238.	6.3223E+08	116.74
-27.00	-6.4766E+03	-122.	6.4582E+08	115.21
-28.00	-6.5416E+03	-8.	6.4825E+08	113.79
-29.00	-6.4928E+03	105.	6.3939E+08	112.47
-30.00	-6.3315E+03	217.	6.1932E+08	111.25
-31.00	-6.0589E+03	328.	5.8833E+08	110.11
-32.00	-5.6763E+03	437.	5.4688E+08	109.05
-32.40	-5.4930E+03	481.	5.2756E+08	108.66
-33.00	-5.1845E+03	546.	4.9564E+08	108.07
-34.00	-4.5847E+03	654.	4.3546E+08	107.15
-35.00	-3.8777E+03	760.	3.6737E+08	106.30
-36.00	-3.0644E+03	866.	2.9260E+08	105.51
-37.00	-2.1456E+03	971.	2.1255E+08	104.77
-38.00	-1.1220E+03	1076.	1.2880E+08	104.09
-38.10	-1.0177E+03	1081.	1.2057E+08	0.00
-39.00	-1.7360E+02	642.	4.3114E+07	-972.04
-39.50	0.0000E+00	0.	0.0000E+00	-1591.67

NOTE: DIVIDE SCALED DEFLECTION MODULUS OF ELASTICITY IN PSI TIMES PILE MOMENT OF INERTIA IN IN^4 TO OBTAIN DEFLECTION IN INCHES.

III.--WATER AND SOIL PRESSURES

		<----------SOIL PRESSURES---------->			
		<----LEFTSIDE----->		<---RIGHTSIDE---->	
ELEVATION (FT)	WATER PRESSURE (PSF)	PASSIVE (PSF)	ACTIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)
0.00	0.	0.	0.	0.	500.
-1.00	0.	0.	0.	0.	734.
-2.00	0.	0.	0.	0.	843.
-3.00	0.	0.	0.	0.	952.
-3.44	0.	0.	0.	0.	1000.
-3.50+	0.	0.	0.	7.	1007.
-3.50+	0.	0.	0.	0.	1487.
-4.00	0.	0.	0.	0.	1537.
-5.00	0.	0.	0.	0.	1638.
-6.00	0.	0.	0.	0.	1738.
-7.00	62.	0.	0.	0.	1777.
-8.00	125.	0.	0.	0.	1815.
-9.00	187.	0.	0.	0.	1854.
-10.00	250.	0.	0.	0.	1893.
-11.00	312.	0.	0.	0.	1932.
-11.71	357.	0.	0.	0.	1960.
-12.00+	374.	0.	0.	11.	1971.
-12.00+	374.	0.	0.	651.	1331.
-13.00	437.	0.	0.	688.	1368.
-14.00	499.	0.	0.	725.	1405.
-15.00+	562.	0.	0.	762.	1442.
-15.00+	562.	340.	0.	762.	1442.
-16.00	562.	381.	0.	799.	1479.

Anchored el. -15 Q-case

-17.00	562.	421.	0.	837.	1517.
-18.00	562.	462.	0.	874.	1554.
-19.00+	562.	502.	0.	912.	1592.
-19.00+	562.	922.	0.	492.	2012.
-20.00	562.	967.	0.	534.	2054.
-21.00	562.	1012.	0.	576.	2096.
-22.00	562.	1056.	0.	619.	2139.
-23.00	562.	1101.	0.	661.	2181.
-24.00	562.	1145.	0.	704.	2224.
-25.00	562.	1190.	0.	747.	2267.
-26.00	562.	1235.	0.	790.	2310.
-27.00	562.	1279.	0.	833.	2353.
-28.00	562.	1324.	0.	876.	2396.
-29.00	562.	1368.	0.	919.	2439.
-30.00	562.	1413.	0.	963.	2483.
-31.00	562.	1458.	0.	1006.	2526.
-32.00	562.	1502.	0.	1050.	2570.
-32.40	562.	1520.	0.	1067.	2587.
-33.00	562.	1547.	27.	1093.	2613.
-34.00	562.	1591.	71.	1137.	2657.
-35.00	562.	1636.	116.	1181.	2701.
-36.00	562.	1681.	161.	1225.	2745.
-37.00	562.	1725.	205.	1268.	2788.
-38.00	562.	1770.	250.	1312.	2832.
-38.10	562.	1774.	254.	1317.	2837.
-39.00+	562.	1814.	294.	1356.	2876.
-39.00+	562.	3294.	338.	685.	6588.
-40.00	562.	3474.	356.	703.	6767.

PROGRAM CWALSHT-DESIGN/ANALYSIS OF ANCHOREDOR CANTILEVER SHEET PILE WALLS
BY CLASSICAL METHODS

DATE: 15-JANUARY-2011 TIME: 7:16:09

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* COMPLETE OF RESULTS FOR *
* ANCHORED WALL DESIGN *
* BY FIXED EARTH METHOD *
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I.--HEADING
'SAENGER THEATRE REDEVELOPMENT
'PROPOSED BACKSTAGE ADDITION
'ANCHORED WALL - BRACED BY SLAB AT ELEV. -15
'SHORT-TERM CONDITION (Q-CASE)

II.--RESULTS (ANCHOR FORCE= 9451. (LB))

ELEVATION (FT)	BENDING MOMENT (LB-FT)	SHEAR (LB)	SCALED DEFLECTION (LB-IN^3)	NET PRESSURE (PSF)
0.00	0.0000E+00	0.	2.3539E+08	0.00
-1.00	-4.3656E-11	0.	2.1589E+08	0.00
-2.00	-4.3656E-11	0.	1.9639E+08	0.00
-3.00	4.3656E-11	0.	1.7689E+08	0.00
-3.44	1.3762E-10	0.	1.6840E+08	0.00
-3.50	4.9883E-03	0.	1.6714E+08	7.10
-3.50	4.9883E-03	0.	1.6714E+08	0.00
-4.00	1.2020E-01	0.	1.5739E+08	0.00
-5.00	3.5064E-01	0.	1.3789E+08	0.00

Anchored el. -15 Q-case

-6.00	5.8107E-01	0.	1.1839E+08	0.00
-7.00	1.1212E+01	31.	9.8896E+07	62.40
-8.00	8.4242E+01	125.	7.9428E+07	124.80
-9.00	2.8207E+02	281.	6.0123E+07	187.20
-10.00	6.6710E+02	499.	4.1333E+07	249.60
-11.00	1.3017E+03	780.	2.3732E+07	312.00
-11.71	1.9415E+03	1019.	1.2492E+07	356.52
-12.00	2.2485E+03	1125.	8.4246E+06	385.68
-12.00	2.2485E+03	1125.	8.4246E+06	1025.68
-13.00	3.9029E+03	2200.	-2.8953E+06	1124.69
-14.00	6.6820E+03	3375.	-7.3090E+06	1223.91
-15.00	1.0685E+04	4648.	0.0000E+00	1323.36
-15.00	1.0685E+04	-4803.	0.0000E+00	983.36
-16.00	6.3733E+03	-3821.	2.3216E+07	980.03
-17.00	3.0417E+03	-2843.	5.7585E+07	976.90
-18.00	6.8693E+02	-1867.	9.7352E+07	973.98
-19.00	-7.6379E+02	-1105.	1.3844E+08	551.25
-20.00	-1.6632E+03	-765.	1.7829E+08	128.70
-21.00	-2.3640E+03	-637.	2.1528E+08	126.33
-22.00	-2.9383E+03	-512.	2.4822E+08	124.12
-23.00	-3.3885E+03	-389.	2.7609E+08	122.07
-24.00	-3.7166E+03	-268.	2.9812E+08	120.16
-25.00	-3.9246E+03	-148.	3.1375E+08	118.39
-26.00	-4.0141E+03	-31.	3.2261E+08	116.74
-27.00	-3.9868E+03	85.	3.2456E+08	115.21
-28.00	-3.8444E+03	200.	3.1963E+08	113.79
-29.00	-3.5881E+03	313.	3.0808E+08	112.47
-30.00	-3.2193E+03	425.	2.9034E+08	111.25
-31.00	-2.7393E+03	535.	2.6705E+08	110.11
-32.00	-2.1491E+03	645.	2.3905E+08	109.05
-32.40	-1.8831E+03	688.	2.2678E+08	108.66
-33.00	-1.4499E+03	753.	2.0735E+08	108.07
-34.00	-6.4264E+02	861.	1.7316E+08	107.15
-35.00	2.7181E+02	968.	1.3787E+08	106.30
-36.00	1.2926E+03	1074.	1.0307E+08	105.51
-37.00	2.4189E+03	1179.	7.0516E+07	104.77
-38.00	3.6499E+03	1283.	4.2158E+07	104.09
-38.10	3.7744E+03	1288.	3.9715E+07	0.00
-39.00	4.8059E+03	849.	2.0107E+07	-972.04
-40.00	4.9628E+03	-742.	6.2186E+06	-2209.64
-41.00	3.0894E+03	-3032.	6.0282E+05	-2371.70
-42.00	0.0000E+00	-4926.	0.0000E+00	-2497.75

NOTE: DIVIDE SCALED DEFLECTION MODULUS OF ELASTICITY IN PSI TIMES PILE MOMENT OF INERTIA IN IN^4 TO OBTAIN DEFLECTION IN INCHES.

III.--WATER AND SOIL PRESSURES

		<----------SOIL PRESSURES---------->			
	WATER	<----LEFTSIDE----->		<---RIGHTSIDE---->	
ELEVATION (FT)	PRESSURE (PSF)	PASSIVE (PSF)	ACTIVE (PSF)	ACTIVE (PSF)	PASSIVE (PSF)
0.00	0.	0.	0.	0.	500.
-1.00	0.	0.	0.	0.	734.
-2.00	0.	0.	0.	0.	843.
-3.00	0.	0.	0.	0.	952.
-3.44	0.	0.	0.	0.	1000.
-3.50+	0.	0.	0.	7.	1007.
-3.50+	0.	0.	0.	0.	1487.
-4.00	0.	0.	0.	0.	1537.
-5.00	0.	0.	0.	0.	1638.

Anchored el. -15 Q-case

-6.00	0.	0.	0.	0.	1738.
-7.00	62.	0.	0.	0.	1777.
-8.00	125.	0.	0.	0.	1815.
-9.00	187.	0.	0.	0.	1854.
-10.00	250.	0.	0.	0.	1893.
-11.00	312.	0.	0.	0.	1932.
-11.71	357.	0.	0.	0.	1960.
-12.00+	374.	0.	0.	11.	1971.
-12.00+	374.	0.	0.	651.	1331.
-13.00	437.	0.	0.	688.	1368.
-14.00	499.	0.	0.	725.	1405.
-15.00+	562.	0.	0.	762.	1442.
-15.00+	562.	340.	0.	762.	1442.
-16.00	562.	381.	0.	799.	1479.
-17.00	562.	421.	0.	837.	1517.
-18.00	562.	462.	0.	874.	1554.
-19.00+	562.	502.	0.	912.	1592.
-19.00+	562.	922.	0.	492.	2012.
-20.00	562.	967.	0.	534.	2054.
-21.00	562.	1012.	0.	576.	2096.
-22.00	562.	1056.	0.	619.	2139.
-23.00	562.	1101.	0.	661.	2181.
-24.00	562.	1145.	0.	704.	2224.
-25.00	562.	1190.	0.	747.	2267.
-26.00	562.	1235.	0.	790.	2310.
-27.00	562.	1279.	0.	833.	2353.
-28.00	562.	1324.	0.	876.	2396.
-29.00	562.	1368.	0.	919.	2439.
-30.00	562.	1413.	0.	963.	2483.
-31.00	562.	1458.	0.	1006.	2526.
-32.00	562.	1502.	0.	1050.	2570.
-32.40	562.	1520.	0.	1067.	2587.
-33.00	562.	1547.	27.	1093.	2613.
-34.00	562.	1591.	71.	1137.	2657.
-35.00	562.	1636.	116.	1181.	2701.
-36.00	562.	1681.	161.	1225.	2745.
-37.00	562.	1725.	205.	1268.	2788.
-38.00	562.	1770.	250.	1312.	2832.
-38.10	562.	1774.	254.	1317.	2837.
-39.00+	562.	1814.	294.	1356.	2876.
-39.00+	562.	3294.	338.	685.	6588.
-40.00	562.	3474.	356.	703.	6767.
-41.00	562.	3654.	374.	721.	6947.
-42.00	562.	3834.	393.	738.	7126.